# IDEAL MEXICO SUPER 2 CF 60 P

# Open Flue Gas Boilers.

# Installation & Servicing.

**CAUTION:** To avoid the possibility of injury during the installation, servicing or cleaning of this appliance, care should be taken when handling edges of sheet steel components.

**Note.** The appliances covered by this book are fitted with HONEYWELL gas controls.



IMPORTANT. These appliances are for use with PROPANE ONLY

NOTE TO THE INSTALLER. LEAVE THESE INSTRUCTIONS ADJACENT TO THE APPLIANCE



#### **GENERAL GUIDANCE**

#### Table 1 – GENERAL DATA

Boiler Size			CF 60P
Main Burner			AEROMATIC AC 19 / 123 271
Gas Control	Valve		1/2 in. BSP. HONEYWELL VR 4700 E 1031, 240 V
Burner Injector			BRAY 10 700
Pilot Injector	·		HONEYWELL 20/23 P
Gas Supply C	onnection	in. BSP/t	Rc 1/2 (1/2)
Flue Connect	tion mm (in.)	•	100 (4)
No. of Boiler	Sections		3
Flow connec	tion & Returi	n connection.»	Rc 1 (1 in BSP)
MAXIMUM S Head	Static Water	m ft	30.5 100
MINIMUM S Head	tatic Water	m ft	1 3.3
Electrical Su	pply		240 V ~ 50 Hz
External Fus	e Rating		ЗА
Water Conter	nt	Litre (gal)	7.4 (1.6)
Dry Weight		kg (lb)	99.0 (218.0)
Boiter Size	Height	mm (in.)	850 (33.5)
	Width	mm (in.)	440 (17.4)
	Depth	mm (in.)	533 (21.0)

#### Table 2 – PERFORMANCE DATA

Boiler Size		CF 60 P	
Boiler Input		· · · · · · · · · · · · · · · · · · ·	
NOMINAL	kW	23.4	-
	Btu/h	80000	
Gas Consumption		0.246	
		· · · · · · · · ·	
Boiler Output to Water	-		
		170	
NOMINAL	kW i -	17.6	
NOMINAL	kW Btu/h	17.6 60000	
NOMINAL		17.6	
Burner Setting NOMINAL		17.6	
	Btu/h	60000	
Burner Setting NOMINAL	Btu/h mbar	17.6 60000 35.5	
Burner Setting NOMINAL	Btu/h mbar	17.6 60000 35.5	

#### Notes.

- Gas consumption is calculated using a calorific value of 95.0 MJ/m<sup>3</sup> (2500 Btu/ft.<sup>3</sup>).
- 2. To obtain fuel consumption in liquid form, divide the above figures by 270.

PERFORMANCE DATA

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# GENERAL GUIDANCE

#### INTRODUCTION

The **Ideal Mexico Super 2 CF 60 P** is a floor standing, natural draught open flued gas boiler. It is range rated to provide a central heating output of 17.6 kW (60 000 Btu/h). The boiler has a cast iron heat exchanger, with an insulating blanket of aluminium foil backed fibre-glass held in place by clips, and comes fully assembled, complete with casing in white enamelled mild steel.

Programmer and pump kits which fit within the casing are available as optional extras and separate fitting instructions are included with the kits.

A door at the top of the casing front panel hinges down to reveal the boiler thermostat control (and the programmer if fitted).

The boilers are suitable for connection to OPEN VENTED SYSTEMS ONLY.

The systems may be pumped or gravity circulating indirect DHW only, pumped central heating only, or pumped central heating combined with either a pumped or gravity circulating indirect DHW circuit.

#### Gas Safety (Installation and Use) Regulations, 1984.

It is in your own interest, and that of safety, to ensure that the law is complied with.

The installation of the boiler MUST also be in accordance with the current I.E.E. Wiring Regulations, The Building Regulations (1985), Building Standards (Scotland), the Bye laws of the Local Water Undertaking and any relevant requirements of the Local Authority. Detailed recommendations are contained in the following British Standards Codes of Practice.

#### Codes of Practice.

BS.6891:1988 Low pressure installation pipes.

BS.6798	Installation of gas fired hot water boilers of rated input not exceeding 60 kW.
BS.5449:1	Forced circulation hot water systems (small bore and microbore domestic central heating systems).
BS.5546	Installation of gas hot water supplies for domestic purposes (2nd Family Gases).
BS.5440:1	Flues (for gas appliances of rated input not exceeding 60 kW),
BS.5440:2	Air supply (for gas appliances of rated input not exceeding 60 kW).

**IMPORTANT.** It is important that no external control devices, (e.g. flue dampers, economisers, etc.) are directly connected to this appliance unless covered by these 'Installation and Servicing Instructions' or otherwise recommended by Stelrad Group Ltd., in writing. If in doubt please enquire.

Any direct connection of a control device not recommended by Stelrad Group Ltd., could invalidate the BSI certification and the normal appliance warranty. It could also infringe the Gas Safety Regulations and the above Regulations or other statutory requirements. Manufacturers notes must NOT be taken, in any way as overriding statutory obligations.

#### LOCATION OF BOILER

The floor MUST be flat and level, and of a suitable load bearing capacity.

3. The appliance is preset at the factory to give the nominal output at an inlet pressure of 37 mbar (14.8 in w.g.).

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The boiler may be fitted on a combustible floor, and installation, other than that required by the Local Authority and Building Regulations, is NOT necessary.

THE BOILER IS NOT SUITABLE FOR EXTERNAL INSTALLATION.

The boiler MUST NOT be installed in a bedroom, or in a room containing a bath or shower, or in a garage.

A compartment used to enclose the boiler MUST be designed and constructed specially for this purpose.

- An existing cupboard or compartment, may be used provided it is modified for the purpose.
- Details of essential features of cupboard/compartment design, including airing cupboard installations are given in BS.6798.
- In siting the boiler, the following limitations MUST be observed:
- 1. The position selected for installations MUST allow adequate space for servicing in front of the boiler and for air circulation around the boiler. The back of the boiler may be fitted up to the wall.
- This position MUST also permit the provision of a satisfactory flue and an adequate air supply. Installation in airing cupboards is NOT recommended.

#### GAS SUPPLY

The local Propane gas supplier should be consulted, at the installation planning stage, in order to establish the availability of an adequate supply of gas.

Installation pipes, cylinders and pressure regulations should be fitted in accordance with BS.5482:1.

Bulk tank installations must comply with the Home Office code of practice for the storage of Liquified Petroleum Gas at fixed installations.

The complete installation MUST be tested for gas soundness and purged as described in the above Code.

#### FLUEING

The flue MUST be installed in accordance with the recommendations of BS.5440:1.

The following notes are intended for general guidance:

- The cross-sectional area of the flue, serving the boiler, MUST be NOT less than the area of the flue outlet of the boiler. If flue pipe is to be used, it MUST be NOT less than 100mm (4 in.) }.D.
- 2. Flue pipes and fittings, should be constructed from one of the following materials:
  - a) Aluminium or Stainless Steel.
  - b) Cast Iron coated on inside with acid-resistant vitreous enamal.
  - c) Other approved material.
- 3. If twin walled flue pipe is used, it should be of an approved type.
- 4. If a chimney is to be used, it should preferably be one that is composed of, or lined with, a non-porous acid resistant material.

**Note.** Chimneys lined with salt glazed, earthenware pipes, are acceptable if the pipes comply with BS.65 and BS.5440:1. A flue pipe, constructed from one of the materials in 2(a), 2(b), or 2(c) above, should form the initial connection to the lined chimneys. Where a chimney is to be used that is not composed of or lined with, a non-porous, acid resistant material it

# **GENERAL GUIDANCE**

should be lined with a stainless steel flexible flue liner which complies with BS,715:1986. The internal diameter of the liner MUST NOT be less than 100mm (4 in.), and the number of joints MUST be kept to a minimum.

- 5. Before connecting the boiler to, or inserting a liner into a flue that has been previously used - then the flue MUST be thoroughly swept of any soot or loose material. If a registar plate, restrictor plate or damper, etc, is fitted in the flue then it MUST be removed before connecting the boiler to or inserting a liner into the flue.
- The flue should terminate in accordance with the 6. relevant recommendations given in BS.5440:1.
- 7. The flue MUST be fitted with a terminal or ridge tile. The terminal shall be of an approved type. This terminal must NOT be installed within 600 mm (24 in) of an openable window, air vent or any other ventilation opening.
- 8. The chimney/flue lining MUST be sealed at both top and bottom.

**IMPORTANT.** It is absolutely ESSENTIAL to ensure, in practice that the flue discharge is in a downdraught free zone and products of combustion, discharging from the terminal cannot re-enter the building, or any other adjacent building through ventilators, windows, doors, other sources of natural air infiltration or forced ventilation/air conditioning systems.

Continuous spillage of the products of combustion must NEVER be allowed to issue from the draught diverter relief outlets. If this eventually should occur, the appliance MUST be turned OFF immediately and the local Propane Supplier called into investigate.

#### AIR SUPPLY

Detailed recommendations for air supply are given in BS 5440:2

The following notes are intended for general guidance:

1. The room, or internal space, in which the boiler is installed MUST have, or be provided with, a permanent air vent. This vent MUST be either direct to outside air, or to an adjacent room, or internal space, which MUST itself have, or be provided with, a permanent air vent at least the same size, direct to outside air.

The minimum effective area of the permanent air vent(s) are specified below, and are related to maximum rated heat input of the boiler.

#### Table 3

Boiler Size		CF 60 P
Effecitve	cm <sup>2</sup>	74
Area	(in <sup>2</sup> )	12

The air vent(s) must NOT have provision for closing or adjustment, and should be sited to avoid risk of accidental damage or blockage.

If other methods of ventilation are envisaged, the local Propane Supplier should be requested to advise before proceeding.

2. If the boiler is to be installed in a cupboard, or compartment, permanent air vents are required, (for combustion, flue dilution and cooling purposes) in the cupboard, or compartment, at both high and low levels, to ensure safe and efficient combustion and ventilation.

#### AIR SUPPLY - VENTILATION

The air vents may either communicate with a room/internal space, appropriately ventilated, or be direct to outside air.

The minimum effective areas of the permanent air vents, required in the cupboard/compartment, are specified below, and are related to the maximum rated heat input of the boiler.

#### Table 4:- CF 60 P

Position of	Air from room/	Air direct
air vent	internal space	from outside
HIGH cm <sup>2</sup>	211	106
LEVEL (in <sup>2</sup> )	(33)	(17)
LOW cm <sup>2</sup> LEVEL (in <sup>2</sup> )	422 (66)	211 (33)

#### Notes

- (a) Both air vents MUST communicate with the same room or internal space, or MUST be on the same wall to outside air.
- (b) In siting the air vents care must be taken to avoid freezing of pipework.
- (c) Where cupboard/compartment air vents are open to a room or internal space, the room or internal space MUST itself be provided with a permanent air vent as previously specified.
- (d) The cupboard/compartment air vents MUST NOT communicate with a bedroom, bed sitting room, or a room containing a bath or shower.

#### EFFECT OF AN EXTRACTOR FAN

If there is any type of extract fan fitted in the premises, there is a possibility that, if adequate air inlet area from outside is not provided, spillage of the products from the boiler flue could occur when the fan is in operation.

Where such installations occur, a spillage test, as detailed in BS.5440:1 MUST be carried out and any necessary action taken.

#### VENTILATORS IN SERIES

In installations requiring two ventilators to be fitted in series e.g., across a cavity wall, EACH should be sized in accordance with the above data.

Where there are more than two ventilators in series, EACH

#### WATER CIRCULATION - ELECTRICAL SUPPLY GENERAL GUIDANCE

should have an area of 50% in excess of the value quoted above.

#### WATER CIRCULATION SYSTEM

The boiler must NOT be used for direct hot water supply or for sealed system, The boiler is supplied for  $240V \sim 50$ Hz Single Phase.

The boiler is suitable for connection to pumped, open vent Fuse rating is 3A. central heating systems, pumped central heating combined The method of connection to the mains electricity supply with pumped or gravity indirect domestic hot water supply MUST facilitate complete electrical isolation of the boiler, systems, and gravity, or pumped, indirect domestic hot preferably by the use of a fused three-pin plug and water supply systems, shuttered socket-outlet, both complying with the require-Note. The boiler is NOT suitable for gravity heating ments of BS,1363.

systems. The hydraulic resistances of the boilers, at Alternatively, a fused double-pole switch, having a 3mm MAXIMUM OUTPUT with 11°C (20°F) temperature (1/8 in.) contact separation in both poles and serving only differential, are shown in Fig. 1. the boiler may be used.

The central heating system should be in accordance with The point of connection to the mains should be readily the relevant recommendations given in BS,6798 and, in accessible and adjacent to the boiler. addition, for small bore and microbore systems - BS,5549:1,

The domestic hot water system, if applicable, should be in accordance with the relevant recommendations of BS.5546.

Copper tubing, to BS.2871:1, is recommended for water carrying pipework.

The hot water storage cylinder MUST be of the indirect type and should be preferably manufactured of copper, Single feed indirect cylinders are not preferred,

The hot water cylinder, and ancillary pipework, not forming part of the useful heating surface, should be lagged to prevent heat loss and any possible freezing, particularly where pipes run through roof spaces and ventilated under floor spaces, in accordance with the water bye laws.

The boiler MUST be vented.

If venting cannot be done via a flow connection, a separate vent MUST be fitted by the Installer.

Draining taps MUST be located in accessible positions which permit the draining of the whole system, including the boiler and hot water storage vessel.



to a temperature rise of 11°C (20°F)

#### FIG. 1 HYDRAULIC RESISTANCE GRAPH

-Draining taps should be at least 1/2 in. nominal size and be in accordance with BS.2879.

If required a drain tap (not supplied) may be fitted to an unused bottom 1"BSP tappings on the front of the boiler.

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### ELECTRICAL SUPPLY Wiring external to the appliance MUST be in accordance with the current I.E.E. Wiring Regulations and any Local Regulations which apply.

#### BOILER ASSEMBLY

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NSTALLA		
2 UNPACKI	NG	
Unpack the boiler	and check the c	ontents.
The boiler is suppl	ied fully assemb	led in one pack A.
		1 in. BSP plugs, 5 off
		1 jn, — 1/2 in, BSP reducing bush , 1 off
		Distrubutor tube, 1 off
		Thermostat pocket, 1 off
	- 0 <u></u> 3	Thermostat retaining clip 1 off
Complete Boiler		Thermostat retaining pin, 1 off
Packing list, 1 off		Output setting label, 1 off
4 BOILER	CLEARAN	CES
		of the space in which the te servicing, are as follows:—
If an optional con	cealment grille ]	s to be fitted see note below.
Additional space v upon site conditio		for installation, depending

IMPORTANT (a) In order to facilitate gas connection a clearance of at least 100mm (4 in.) must be available to either the left-hand or right-hand side DURING installation - Refer to Frame 6.

> (b) A MINIMUM clearance of 25mm (1 in.) should also be maintained between the flue . pipe and any adjacent combustible material,

		CF 60 P
At the top of the boiler	mm (in.)	20 (3/4)
MIN MUM at ONE side of the boiler	A or B mm (in,)	10 (3/8)
MINIMUM aggregate clearance	A plus B mm (in.)	110 (4 1/2)

Note. A clip-on concealment panel is available as an optional extra - See separate fitting instruction. If such a panel is fitted, the clearance on that side MUST NOT be less than 110mm, and not less than the minimum specified above on the other side,

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Boiler Size		Width	Depth	Height
CF 60 P	mm	550	535	870
	(in.)	(21 5/8)	(21)	(34 1/4)

In addition, a MINIMUM clearance of 533mm (21 in.) MUST be available at the front of the boiler for servicing. See illustration below for boiler clearances,



# **5** BOILER CASING REMOVAL

To install the boiler, the casing MUST be removed.

- 1. Lift off the lower front panel (F).
- 2. Remove the gas valve cover by removing the retaining screw and disconnect the electrical leads. Refer to Frame 2 'Servicing'.
- 3. Release the gas valve lead from the retaining clip.
- 4. Remove the two screws securing the control panel (C) and disengage the panel by lowering and pulling it forward. Place the panel safely to one side.
- 5. Remove the two screws securing the top panel (L) to the side panels (E) and (K).
- 6. Draw the top panel (L) forward slightly and lift it off the boiler.
- 7. Remove the two screws securing the R.H. side panel (E) to the flue collector and the base plate.
- 8. Pull the panel forward slightly, lifting it clear of the locating peg (I), and remove it from the boiler.
- 9. Repeat steps 7 and 8 to remove the L.H. side panel (K).
- 10. The boiler is held to the packaging base by four M 6 screws. Remove the front screws. Slacken the rear screws and remove the boiler from the packaging base.
- 11. Remove the flue clean-out cover and ensure that the baffles are fully inserted in the flue-ways:



BOILER CASING REMOVAL

CF 60 P



LEGEND

- A. Control door
- B. Boiler thermostat
- C. Controls panel
- D. Control box E, RH side panel
- F. Lower front panel
- H. Baseplate
- I. Locating lugs
- J. Cable straps
- K, LH side panel
- L. Top panel



# **6** PREPARING THE BOILER

- Notes (a) Before placing the boiler in the selected position, any gas and water connections at the rear of the boller should be prepared because of lack of access,
  - (b) If an Optional Pump Kit is to be used it must be fitted at this stage - refer to the separate fitting instructions included with the kit,
- 1. Screw the distributor tube, supplied with 1 in. BSP x 28mm copper adaptor, into the selected heating return tapping, using an appropriate jointing material - Refer to Frame 8. IT IS IMPERATIVE THAT THE INDEX MARK ON THE DISTRIBUTOR BUSH IS IN ALIGNMENT WITH THE MARK ON THE SECTION BOSS AS SHOWN,

DO NOT disturb it when connecting subsequent pipework.

Fully Pumped systems, using more than one pump serving separate zones, MUST have a common return connection to the distributor tube,

#### Table 5

#### CULLY DUMPED EVETEME

	ECTIONS AS FROM FRONT THERMOSTAT POSITION		v	CONNECT		THERMOSTAT POSITION	
Back S	Section	Front Section		Back S	ection		Front Section
Flow	Return	Тор	(	;H	Di	-IW	Тор
LH	LH	LH	Flow	Return	Flow	Return	· · · · · · · · · · · · · · · · · · ·
LH	RH	LH	LH	LH	RH	RH	LΗ
RH	RH	RH	LH	RH	RH	LΗ	LΗ
RH	ĻΗ	RH	RH	RH	LH	LH	RH
-		to the flow or return,	RH	LH	LH	RH	RH

# **7** WATER CONNECTIONS

1. Connect appropriate fittings to the rear tappings and plug any unused tappings.

Note. If using iron elbows, fit a short straight connector into the boiler tapping first, in order to clear the casing when fitted.

2. Place the boiler in position.

Connect the system flow and return pipework to the boiler as appropriate - Refer to Frames 8 and 9 for guidance on system design,



Tal	ole 7		
_		_	-

BOILER SIZE	Dimn A	B	С	D	E	F	G	н	J	к	L	M
CF60P mm	440	850	533	358	560	335	218	122	50	60	28	120
in	17 3/8	33 1/2	21	14 1/8	22	13 1/4	8 5/8	4 3/4	2	2 3/8	1 <b>1/</b> 8	4 3/4

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# SERVICE CONNECTIONS

'2, Select the desired pumped flow tapping.



RH return tapping shown

3. Screw the boiler thermostat pocket, supplied, into the appropriate front section tapping, using an approved jointing material. Refer to Tables 7 and 8

#### Table 6 GRAVITY DOMESTIC HOT WATER AND PUMPED CENTRAL HEATING

- Notes (a) When the required output exceeds 14.4kW (49,000 Btu/h) 28mm (1 in.) pumped flow and return pipes should be used both to and from the boiler.
  - (b) Gravity pipework and connections MUST be at least 28mm (1 in.).
- 3. Ensure that all valves are open, fill and vent the system and check for water soundness,
  - **Notes (a)** Isolating valves must be fitted as close to the pump as possible.
    - (b) The boiler is not suitable for use with a direct hot water cylinder, or a sealed system,





Gas connection left or right by using elbow supplied in boiler hardware pack.

Table 5 Frame 6

circulating system.

Stelrad Group.

The following assumptions and conditions apply.

1. Open yent and cold feed connections are made to the boiler

flow/return tappings according to the options shown in

3. The circulating pump is positioned on the FLOW, and the

tank, complies with the Pump Manufacturer's minimum requirements - to avoid cavitation. Should these conditions

expansion tank above the minimum requirements of

accross the boiler flow/return, at design input,

operation of motorised valves, pumps etc.

If in any doubt, contact Stelrad Group.

4. The water velocity through the boiler flow/return pipes is

assumed to be below 1 m/s (3 ft/s), whilst the pump flow

5. This information is intended as a GUIDE ONLY and cannot take into account instantaneous changes in head causes by

Due allowance MUST be made if surging is liable to occur.

rate is set to provide temperature difference of 11°C (20°F)

vertical distance, between the pump and the feed/expansion

not apply, either lower the pump position, or raise the feed/

2. The boiler is assumed to be the highest point of the

# SYSTEM REQUIREMENTS

Feed/Expansion tan

Reduction in vertical plane

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22mm open vent

28mm

Dimensions In millimeters

System flow

- System return

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INSTALLATION

fibreglass rope, or similar, and suitable fireclay cement.

#### Notes:

- conforming to BS.567. If sheet steel flue pipe is fitted, a suitable adaptor must be used.
- (b) To facilitate installation and subsequent disconnections, it is recommended that a slip or split socket be included in the
- (c) A minimum of 600mm (2 ft.) of vertical flue directly above



# **12** ELECTRICAL CONNECTIONS

WARNING: This appliance MUST be efficiently earthed.

All external controls & external wiring MUST be suitable for mains voltage, Wiring should be 3-core, PVC insulated cable,

Wiring external to the boiler MUST be in accordance with the current I.E.E. Wiring Regulations and any Local regulations which apply.

shuttered socked/outlet preferably adjacent to the boiler, and should such a plug be used for connection to the mains, it MUST be of 3-pin type, wired as shown, fused at 3A, & comply with the requirements of BS.1363. Alternatively a fused, double pole switch, having a 3mm (1/8 in.) in contact separation in both poles and serving only the boiler may be used.

# **13** INTERNAL WIRING

Flow and Pictorial wiring diagrams are shown in Frames 12 and 15. A Schematic wiring diagram is included on the Lighting Instructions Label.

1. Remove the securing screw and lift off the control box cover



(c) A MINIMUM inclination of 25mm per 3m run (1 in, per 10 ft) is required to avoid air locks, If the above conditions cannot be met pumped primaries should be used. 2 4 6 8 10 12 14 16 2.0 Max, pipe run (R) ft,



B MINIMUM REQUIRMENTS. Fully pumped systems.

450mm

minimum

1,000mm

minimum

1. Separate flow and return connections are used for each service.

All possible configurations are shown in Table 6 , Frame 6 and ONLY those connections shown should be used.

- 2. The schematic pipework graph, has been calculated on the assumption that NOT MORE than eight elbows are used in the gravity loop, including entry to the boiler.
- 3. For each extra elbow, in excess of eight, (R) MUST be reduced by 300mm (12 in.), or (H) increased by 100mm (4 in.).





# PLUG CONNECTION - ELECTRICAL CONNECTIONS

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# **14** EXTERNAL CONTROLS

External wiring MUST be in accordance with the current I,E,E, Wiring Regulations,

The wiring diagrams illustrated in Frames 16-18 cover the systems most likely to be used with this appliance.

For wiring external controls to the MEXICO SUPER 2 boiler, reference should be made to the system wiring diagram supplied by the relevant Manufacturer, in conjunction with the wiring diagrams shown in Frames 12 and 15 Difficulty in wiring should not arise, provided the following directions are observed.

- 1. Controls that switch the system ON and OFF, e.g. a time switch MUST be wired in series, in the live mains lead to the boiler
- 2. Controls that over-ride on ON/OFF control, e.g. a frost thermostat, MUST be wired into the mains lead in parallel, with the control(s) to be over-ridden - refer to Frame 19,
- 3. If a propriety system is used, follow the instructions supplied by the Manufacturers,

Note. If there are no external controls, the circulating pump MUST also be wired into the control box.

#### **16** HONEYWELL 'C' PLAN Gravity H.W & pumped C.H.

#### Notes:

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I. SOME EARTH WIRES ARE OMITTED FOR CLARITY -ENSURE PROPER EARTH CONTINUITY WHEN WIRING.

2. Numbering of the thermostat terminals is specific to manufacturer shown.



#### WIRING DIAGRAMS



### 17 TWO SPRING CLOSED VALVES Pumped only

#### Notes

- 1. SOME EARTH WIRES ARE OMITTED FOR CLARITY -ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
- 2. This is a fully controlled system therefore, set the boiler thermostat to its highest position.
- 3. Numbering of thermostat terminals is specific to manufacturer indicated,
- 4. SWITCHMASTER Autozone value also has grey and orange leads, buth the ORANGE wire (not the grey wire) must be connected to the incoming live supply,
- 5. Black dots denote alternative pump connections,



#### INSTALLATION

# **18 MID-POSITION VALVE SYSTEM** (Pumped Only)

#### Notes:

- 1. SOME EARTH WIRES ARE OMMITTED FOR CLARITY -ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
- 2. Black dots denote alternative pump connections.
- 3. This is fully controlled system set boiler thermostat to bighest position
- 4. Numbering of thermostat terminals is specific to manufacturer
- 5. Switchmaster MIDI operates similarly, but the wiring is not identical - see manufacturer's wiring diagram,



#### 20 FITTING THE CASING Refer also to Frame 21

- 1. Offer up the RH side panel (E) locating it with the peg (I) and push the panel back,
- 2. Secure the panel to the base plate and the flue collector using the screws previously removed,
- 3. Repeat steps 1 and 2 to refit the LH side panel (K).

IMPORTANT. Wiring within the boiler casing MUST be neatly secured with the cable straps provided and MUST NOT be allowed to touch the burner front plate or the cleanout cover and collector hood.

- 4. Place the top panel (L) in position and push back.
- 5. Secure the top panel to the side panels using the screws previously removed,
- 6. Replace the control box cover and refit the control panel (C) using the screws previously removed.
- 7. Insert the thermostat phial and phial retaining clips into the thermostat pocket, taking care NOT to kink the thermostat capillary as it is unwound, and secure it with the split pins shown.

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# **19** FROST PROTECTION

Central Heating systems fitted inside the house do not normally require frost protection, since the house acts as an overnight 'storage heater' and can generally be left at least 24 hours without fear of frost damage

If however, parts of the pipework run outside the house, or if it is desired to leave the boiler off for more than a day or so, then a frost-stat should be wired into the system. This is normally done at the programmer, in which case the programme SELECTOR switches are set to 'Off' and all other controls MUST be left in the running position. The frost-stat should be sited in a cold place, but where it can sense heat from the system. Wiring should be basically as shown, with minimal disturbance to other wiring to the programmer. Designation of the terminals will vary; but the programmer and thermostat manufacturer's leaflets will give full details.

Diagram A shows a double pole frost-stat, which should suffice



## FITTING THE CASING - COMMISSIONING & TESTING



#### **22** COMMISSIONING AND TESTING

#### (a) Electrical Installation

- 1. Checks to ensure electrical safety should be carried out by a competent person.
- 2. ALWAYS carry out the preliminary electrical system checks as detailed on the Instructions for the British Gas Mulitmeter, or similar test meter.

#### (b) Gas Installation

- 1. The whole of the gas installation, including the meter, should be inspected and tested for soundness, and purged in accordance with the recommendations of BS.6891:1988.
- WARNING. Whilst effecting the required gas soundness test and purging air from the gas installation, open all windows and doors, extinguish naked lights and DO NOT SMOKE.
- 2. Purging air from the gas installation may be expedited by loosening the union on the gas service cock and purging until gas is smelled,
- 3. Retighten the union and check for gas soundness.

#### 23 INITIAL LIGHTING Refer also to Frame 24

Note. The pilot burner connection can be tested for gas soundness - refer to Frame 25.

- 1. Connect the gas valve electrical leads.
- 2. Check that the gas service cock (G) is ON and the boiler theromostat knob (J) is OFF.
- 3. Loosen the screw in the burner pressure test nipple (D) and connect a gas pressure gauge via a flexible tube.

- 4. Slide the gas control button (B) to the RIGHT until resistance is felt and then release it.
- 5. Push in and retain fully depressed the gas control button (B), press and release piezo ignition button (I) repeatedly until the pilot lights.
- 6. Hold the gas control button (B) depressed for 15 seconds after the pilot burner has ignited. If the pilot burner fails to remain alight at this stage repeat the procedure detailed above, but wait longer than 15 seconds before releasing the gas control button (B).

#### INSTALLATION

# 24 INITIAL LIGHTING Cont.

- 7. Check the appearance of the pilot flame to ensure that it envelopes the tip of the thermocouple and is approximately 25mm (in.) long. The pilot flame is factory set but if adjustment is necessary refer to Frame 9 'Servicing',
- 8. Switch the electricity supply ON and check that all external controls are calling for heat.
- 9. Turn the boiler thermostat knob (J) to position 6 and check that the burner cross-lights smoothly.
- 10. Test for gas soundness around the boiler gas components using leak detection fluid.
- 11. Operate the boiler for 10 minutes to stabilise the burner temperature. The boiler is pre-set at the factory to it s nominal rating.
- 12. Immediately check that there is no spillage of combustion products from the draught diverter outlets by carrying out a spillage test as detailed in BS. 5440:1;





# **25** PILOT BURNER CONNECTION GAS SOUNDNESS

- 1. Turn the gas service cock to OFF and undo the union nut.
- 2. Remove the four wing nuts and withdraw the burner and controls assembly complete, from the boiler.
- 3. Invert the burner assembly and re-connect to the gas service cock.
- 4. Turn the gas service cock to ON.
- 5. Light the pilot burner Refer to Frame 23.
- 6. Test for gas soundness around the pilot burner connection, using leak detection fluid.
- 7. Turn the gas service cock to OFF and return the burner and controls assembly to the normal working position.

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- 13. Turn the boiler thermostat knob (J) to OFF.
- 14. Remove the pressure gauge and tube. Retighten the screw in the pressure test nipple, ensuring that a gas-tight seal is made.
- 15. Refit the gas control valve cover.

#### **BOILER CONTROLS**



#### LEGEND

- A. Gas control valve
- B. Control valve button
- C. Pilot pressure adjuster
- D. Burner pressure test nipple
- F. Inlet pressure test nipple
- G. Gas service cock
- H. Sightglass
- I. Piezo ignition button
- J. Boiler thermostat knob



# **26** GENERAL CHECKS

Make the following checks for correct operation:

- 1. Turn the boiler thermostat OFF and ON and check that the main burner lights and extinguishes in response.
- 2. Check that the programmer, if fitted, and all other system controls function correctly.
- Operate each control separately and check that the main burner or circulating pump, as the case may be, responds.

#### 3. Flame Failure Device

Check the operation of the flame failure device in the gas control valve as follows:

- (a) Extinguish the pilot flame by closing the gas service cock(C) and note the time taken for the flame failure device to shut down, identified by a click within the gas control valve.
  This MUST NOT be longer than 60 seconds.
- (b) Open the gas service cock and re-light the pilot.
- (c) Turn the boiler thermostat (H) ON and the burner should light.
- (d) Slide the gas control button to the OFF position refer to Frame 24. The main burner and pilot flame should shut down immediately.

**Note.** A latch in the gas control valve provides a safety delay period of approximately 30 seconds before the boiler can be re-lit.

# 27 HANDING OVER

After completing the installation and commissioning of the boiler system, the Installer should hand over to the Householder by the following actions:

- Hand the User's Instructions to the Householder and explain his/her responsibilities under the Gas Safety (Installations and Use) Regulations 1984.
- **2.** Draw attention to the Lighting Instruction label affixed to inside of the controls door.
- **3.** Explain and demonstrate the lighting and shutting down procedures.
- 4. The operation of the boiler and use and adjustment of ALL system controls should be fully explained to the Householder, to ensure the greatest possible fuel economy, consistent with household requirements of both heating and hot water consumption.

Advise the User of the precautions necessary to prevent damage to the system, and to the building, in the event of the system remaining inoperative during frost conditions,

# **COMMISSIONING & TESTING**

#### 4. Water Circulation System

- (a) With the system HOT, examine all water connections for soundness,
- (b) With the system still hot turn off the gas, water and electricity supplies to the boiler and drain down in order to complete the flushing process.
- (c) Re-fill and vent the system, clear all air locks and again check for water soundness.
- (d) Balance the system,

#### Finally

Set the controls to the Users requirements, refit the lower front panel and close the control door.

#### Notes,

- (a) If an optional Programmer kit is fitted refer to the Programmer Kit Installation and User's Instructions.
- (b) The temperatures quoted below are approximate and may vary between installations.

Knob Setting	Flow Temperature				
	°C	°F			
2	60	140			
3	66	150			
4 .	71	160			
5	77.	170			
6	82	180			

- 5. Explain the function and the use of the boiler thermostat and external controls.
- Explain and demonstrate the function of time and temperature controls/radiator valves, etc. for the economic use of the system.
- 7. If an optional Programmer Kit is fitted, then draw attention to the Programmer Kit User's Instructions and hand them to the Householder.
- 8. Stress the importance of regular servicing by a qualified Heating Engineer, and that a comprehensive service should be carried out AT LEAST ONCE A YEAR.
- **9.** Draw attention to the User's Instructions Emergency action notice.

# SERVICING

# 1 SCHEDULE

- THE FOLLOWING SHOULD BE CARRIED OUT AT PERIODS NOT EXCEEDING ONE YEAR.
- (a) Light the boiler and carry out a pre-service check, noting any operational faults.
- (b) Clean the main burner and lint gauze.
- (c) Clean the heat exchanger.
- (d) Clean the main injector.
- (e) Check the condition of the thermocouple.
- (f) Check that the flue is unobstructed and that the flue system, including the flue cleanout cover, is sealed correctly.
- (g) If the appliance has been installed in a compartment check that the ventilation areas are clear.

THE SERVICING PROCEDURES ARE COVERED MORE , FULLY IN FRAMES 2 TO 9 AND MUST BE CARRIED OUT IN SEQUENCE.



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**WARNING.** Always turn off the gas supply at the gas service cock and switch OFF and DISCONNECT the electricity supply to the appliance BEFORE SERVICING.

**IMPORTANT.** After completing servicing or exchange of components always test for gas soundness, carry out functional checks as appropriate, and test for spillage — Refer to Frame 24 (Installation).

**Note.** It may be necessary to remove the boiler casing to carry out the spillage test — Refer to Frame 5 (Installation).



### **CLEANING & ADJUSTMENT**





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#### **CLEANING & ADJUSTMENT**

# 6 CLEANING BURNER ASSEMBLY

- 1. Clean the lint gauze to remove any deposits of lint, fluff, etc.
- 2. Brush off any deposits that may have fallen onto the burner head - ensuring that the flame ports are unobstructed. Remove any debris that may have collected on the assembly components.

Note. Brushes with metallic bristles MUST NOT be used. Replace lint gauzes and end cap in reverse order.

- 3. Remove the main burner injector. Ensure that there is no blockage or damage. Clean or renew as necessary.
- 4. Refit the injector using an approved jointing compound sparingly.
- 5. Inspect the pilot, thermocouple and spark electrode: ensure that they are clean and in good condition. In particular check that:
  - (a) The pilot burner is clean and unobstructed.
  - (b) The spark electrode is clean and undamaged.
  - (c) The spark lead is in good condition and securely connected.
  - (d) The spark gap is correct Refer to Frame 14.
  - (e) The thermocouple tip is not burned or cracked.
- (f). The position of the thermocouple relative to the pilot burner is correct - Refer to Frame 14.
- (g) The thermocouple terminal at the gas valve is clean. Clean or renew components as necessary.

# 8 RE-ASSEMBLY

Re-assemble the boiler in the following order:

- 1. Replace the flue baffles into the boiler flueways ensuring that they are correctly repositioned - Refer to Frame 5 (Installation).
- 2. Refit the flue cleanout cover renewing any damaged or deteriorating sealing gasket.
- 3. Refit the casing top panel.
- 4. Re-connect the electrical wiring and refit the controls panel. ENSURING that the thermostat phial and phial retaining clip are correctly located in the thermostat pocket and secured by the split pin -Refer to Frame 2
- 5. Check the sight-glass in the front plate. Clean or renew as necessarv
- 6. Renew any damaged or deteriorating front plate gasket.
- 7. Refit the burner and controls assembly,
- 8. Reconnect the gas service cock,

#### 2. Main Burner pressure

After servicing, reference should be made to Table 2, which quotes details of the rated output with the related burner pressure and heat input.

Finally, refit the lower front panel.







#### SERVICING DETAIL OF PILOT BURNER ASSEMBLY (Main burner not shown) 1. Remove the burner & Thermocouple controls assembly. Refer to Frame 4 Pilot burner 2. Disconnect the spark lead. 3. Remove the two securing screws & washers and withdraw the pilot burner. Retaining 4. Prise the retaining clip clip

out of the groove in the

electrode, using a small screwdriver, and

withdraw the electrode.

5. Push in the new electrode

until the retaining clip locates in the groove, &

re-assemble in reverse

Retaining clip groove, see note 3.

Spark lead

order.





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### COMPONENT REPLACEMENT

# **14** SPARK ELECTRODE REPLACEMENT. Showing pilot flame length & spark gap

DETAIL OF PILOT FLAME LENGTH & SPARK GAP



1. Remove the burner and controls assembly. Refer to Frame 4.

2. Remove the spark electrode as detailed in Frame 14.

Pilot gas

supply

Spark

4. Undo the thermocouple connection at the pilot burner and pull the

5. Undo the thermocouple connection at the gas valve.

6. Fit the new thermocouple and re-assemble in reverse order. Note: Avoid sharp bends in the thermocouple lead and ensure that it follows the same

1. Remove the burner and controls assembly. Refer to Frame 4.

2. Remove the spark electrode. Refer to Frame 14.

3. Undo the thermocouple connection & pull the thermocouple clear. Refer to Frame 15.

4. Undo the pilot supply connection and ease clear of the pilot burner. DO NOT lose the pilot injector which is a push fit in the pilot burner housing.

5. Remove the two securing screws and washers and withdraw the pilot burner.

6. Fit the new pilot burner and re-assemble in reverse order ensuring that:

(a) The injector is in position when refitting the pilot supply.

(b) A gas-tight joint is made.

(c) The spark gap is correct. Refer to Frame 14.

# COMPONENT REPLACEMENT





# **19 MAIN BURNER INJECTOR** REPLACEMENT





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# SERVICING



# **EXPLODED VIEWS**

**EXPLODED VIEWS** 



# SERVICING

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Before attempting any electrical fault finding, ALWAYS carry out the available meter. Detailed instructions on the cleaning & adjustment or replacement of faulty components are contained in the 'Servicing' preliminary electrical system checks as detailed in the Instructions for the British Gas Multimeter, or other similar commercially section, of this publication.





# **FAULT FINDING**

The following list comprises parts commonly required as replacements due to damage, expendability, or such that their failure, or absence, is likely to affect safety or performance. This List is extracted from the British Gas List of Parts, which contains all available spare parts.

Details of the British Gas Lists are held by Gas Regions, STELRAD Distributors and by Merchants.

# SHORT LIST OF PARTS

- IDEAL MEXICO SUPER 2 CF 60 P GAS BOILERS
- When ordering spares, please quote: 1. Boiler Model
- 2. Description
- 3. Maker's Part Number
- 4. Quantity

Key No.	G.C. Part No.	Description	No. off	Maker's Part No.
15	341 350	Sight glass assembly, comprising, sight glass, frame, two sight glass gaskets & two M5 wing nuts.	1	129 018 725
17	341 563	Primary air box	1	
19	· .	Main burner- with pilot burner bracket		
		AEROMATIC AC 19/123 271	1	
			1	
			1	
20	•	Main burner injector, BRAY		
		Cat. 10 - Size 700	1	
			1	
21	382 944	Pilot burner, with injector (Key No. 22) HONEYWELL Q 385 A 1020	1	589 088 740
22		Pilot injector, HONEYWELL double orifice (20/23 P)	1	· ·
23		Gas control valve, HONEYWELL VR 4700 E 1031, 240 V	1	
24	395 705	Spark generator, VERNITRON 60080	1	589 830 086
25	319 384	Ignition electrode, BUCCLEUCH, with H.T. lead	1	589 080 088
26	390 083	Thermocouple, HONEYWELL Q 309 A 2747; 750 mm lg.	1	581 861 906
28	319 385	Control box, including Key No. 29	1	586 071 271
29	384 689	Suppressor, ITT (can type)	1	589 040 030
31	382 469	Thermostat, RANCO CL6 PO148 000	1	589 960 051
32	341 359	Thermostat knob, FASTEX	1	586 011 517
		Casing, white stove enamel		
34	319 391	L.H. jacket side panel assembly	1	129 077 212
35	319 394	R.H. jacket side panel assembly	1	129 077 213
38	319 397	Jacket top panel assembly	1	129 077 214
39	319 401	Jacket upper front panel assembly	1	129 077 217
40	319 402	Controls panel assembly	1	129 077 221
41	319 403	Controls panel cover	1	129 077 222 129 077 223
42 43	319 404 319 405	Controls panel hinge Controls panel hinge retainer	2	129 077 223
	515400			
45		Jacket lower front panel assembly	1	





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**CARADON HEATING** pursues a policy of continuing improvement in the design and performance of its products. The right is therefore reserved to vary specification without notice.

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